

Short-Lived Climate Pollutant Reduction Strategy Public Workshop to Discuss Concept Paper

California Air Resources Board
Sacramento, California

May 27, 2015

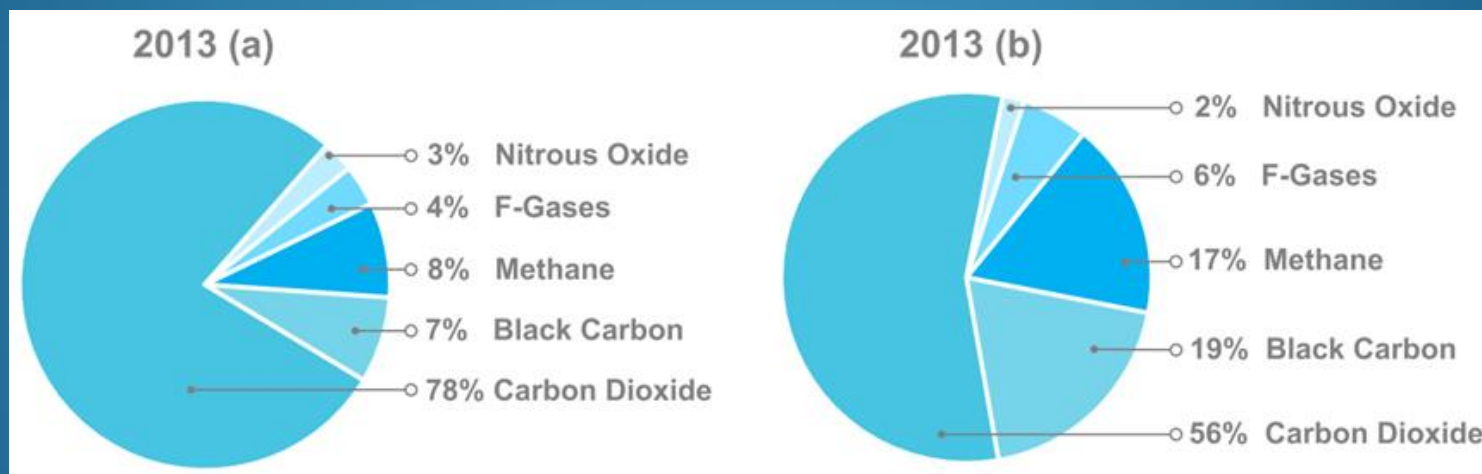
Purpose of Workshop

- Discuss requirements for a Short-Lived Climate Pollutant (SLCP) Strategy
- Discuss initial ideas and potential strategies contained in the Concept Paper released on May 7
- Elicit ideas on these and other potential emission reduction strategies
- Use comments received to inform development of draft Strategy

Short-Lived Climate Pollutants

- Methane, black carbon, fluorinated gases (F-gases, including hydrofluorocarbons)
- Lifetimes of a few days to a few decades
- GWP can be tens to thousands of times greater than CO₂
- Account for about 40% of global warming experienced to date
- Reducing SLCP emissions can make immediate impact on mitigating climate change
- Mitigation of SLCPs is complementary to long-lived pollutants (e.g. CO₂) mitigation

California's 2013 Greenhouse Gas Inventory Using (a) 100-year and (b) 20-Year Global Warming Potential Values



Development of a SLCP Strategy

- Recommended action in the Climate Change Scoping Plan Update
- Required by Senate Bill 605
- Reducing SLCP emissions part of Governor's climate change goals set in his January inaugural address
- Actions in Strategy will support Governor's new target of reducing GHGs to 40% below 1990 levels by 2030

Senate Bill 605 Requirements

- Complete an inventory of sources and emissions
- Identify existing and new control measures
- Identify research needs to address data gaps
- Coordinate with other state agencies and local air districts
- Consult with academic, industry, and community experts
- Hold public workshops during development of strategy
- Complete by January 1, 2016

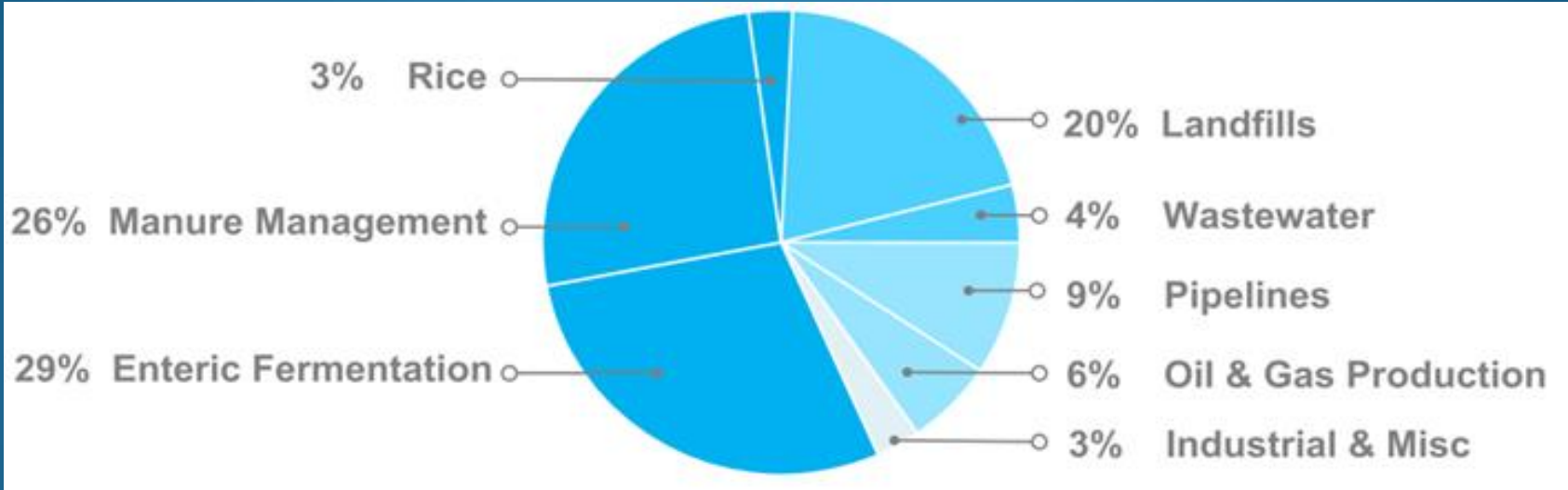
Framing Strategy

- Prioritize actions with multiple benefits
- Put organic waste to its most beneficial use
- Identify practical solutions to overcome barriers
- Improve understanding of SLCP sources and emissions
- Invest in SLCP emission reductions

Potential Targets

- Reduce black carbon emissions by at least 50% below 2012 levels from transportation sources by 2020, and from all sources by 2030
- Reduce methane emissions by at least 20% by 2020, and 40% by 2030 below forecasted emission levels
- Reduce F-gas emissions by at least 25% in 2020, and 50% by 2030 below forecasted emission levels

California 2013 Methane Emission Sources



Current Methane Emission Reduction Efforts

- ARB's landfill regulation
- Existing and proposed offset protocols under Cap-and-Trade program for dairies, coal mines, and rice cultivation
- ARB's development of oil and gas production, processing, and storage rule
- CPUC's development of gas transmission and distribution pipeline leaks rule (SB 1371)

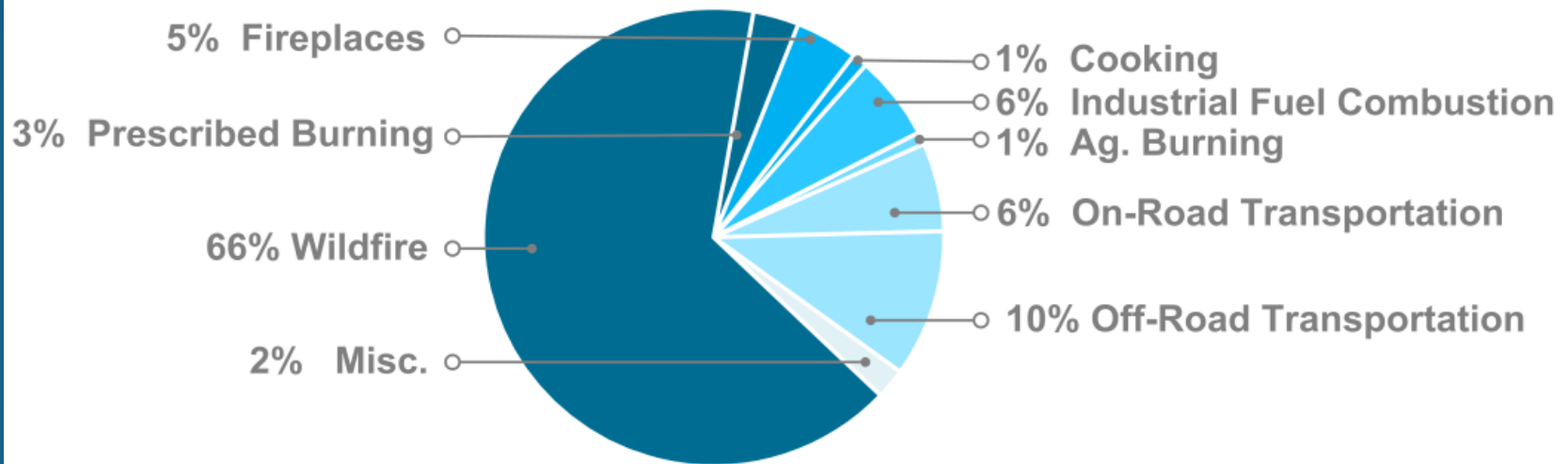
Methane Emission Reduction Concepts

- Minimize fugitive methane emissions from infrastructure and equipment
- Consider fugitive methane emissions in cost/benefit calculations for energy and efficiency programs
- Eliminate disposal of organic materials at landfills
- Significantly cut methane emissions from dairies
- Maximize resource recovery from wastewater treatment facilities

Methane Research Activities

- On-going efforts
 - Cattle enteric fermentation emission estimates
 - Dairy manure emission estimates
 - Emission leaks from NG pipeline systems
 - California methane monitoring network
 - “Hot spot” methane sources in San Joaquin Valley
- Future needs
 - Potential approaches to reduce food waste
 - Potential investment mechanisms to reduce dairy emissions
 - Statewide survey of super emitters

California 2013 Black Carbon Emission Sources



Current Black Carbon Emission Reduction Efforts

- Anthropogenic emissions are 90% lower than in the 1960s, and will be cut in half again by 2020
 - Diesel-fueled engines and vehicles
 - In-use vehicle requirements
 - Incentive programs for switching to cleaner diesel equipment and vehicles
 - District commercial cooking rules
 - Smoke management programs

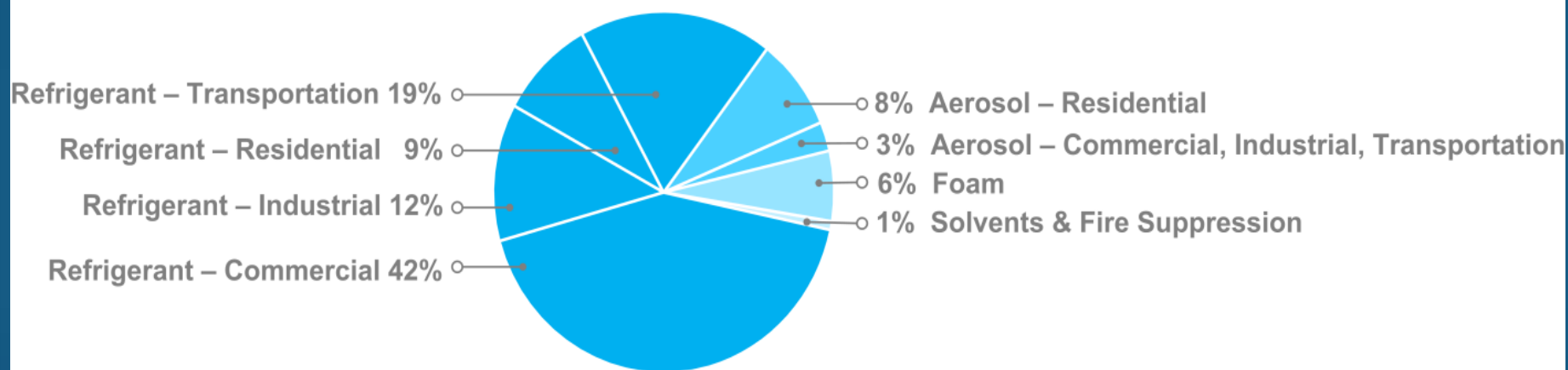
Black Carbon Emission Reduction Concepts

- Continue to reduce diesel black carbon emissions
 - Sustainable Freight Strategy
 - Updates to SIP to achieve federal air quality standards
- Reduce black carbon emissions from biomass burning (wildfires, agriculture burning, open pile burning, commercial cooking, residential burning)
 - Forest Carbon Plan
 - Put woody biomass to most beneficial use

Black Carbon Research Activities

- On-going efforts
 - Improve black carbon emission inventory estimates
 - Characterize biomass burning contribution (black and brown carbon) to climate forcing in California
- Future needs
 - Improve wildfire emission estimates
 - Benefits of biochar projects

California 2013 F-Gas Emission Sources



Current F-Gas Emission Reduction Efforts

- Cap-and-Trade offset protocol incentivizing the capture and destruction of ozone depleting substances
- Regulations adopted under AB 32 expected to reduce emissions 25% by 2020
 - Majority of reductions from Refrigerant Management Program

F-Gas Emission Reduction Concepts

- Reduce the use of HFCs in new refrigeration and air conditioning equipment by at least 80% by 2030
- Remove high global warming potential gases from foams, aerosols, and transportation
- Reduce leaks from existing equipment and at end-of-life
- Target early action to significantly reduce F-gas emissions from commercial refrigeration

F-Gas Research Activities

- On-going efforts
 - Analyze cost, energy usage, performance, and GHG emission reductions associated with alternatives to high-GWP HFCs
 - Evaluate high-GWP GHG emissions from landfilled waste insulating foam
 - Conduct economic assessment study evaluating a variety of F-gas emission reduction strategies

Evaluations of Strategy

- Environmental analysis
- Economic analysis
- Public health impacts

Next Steps

June 12, 2015	Comments on Concept Paper and Strategy development
Summer 2015	<ul style="list-style-type: none">• Release initial draft of Strategy• Public workshops on draft report
Fall 2015	Release draft proposed Strategy
Fall 2015	Present draft proposed Strategy to Board
Spring 2016	Present final Strategy to Board for approval

Contacts

Dave Mehl, Manager, Energy Section
(916) 323-1491 or dmehl@arb.ca.gov

Ryan McCarthy, Chair's Office
(916) 323-2602 or rmccarth@arb.ca.gov

Sarah Pittiglio, Research Division
(916) 324-0627 or spittigl@arb.ca.gov

Marcelle Surovik, Industrial Strategies Division
(916) 327-2951 or msurovik@arb.ca.gov

Website: <http://www.arb.ca.gov/cc/shortlived/shortlived.htm>